4. City of Chandler

The City of Chandler is located in Maricopa County approximately 20 miles southeast of downtown Phoenix. It is bordered on the south by the Gila River Indian Community (GRIC). Once a quiet farm town centered around a tree-lined plaza, the City of Chandler has become one of the fastest growing cities in the nation. In recent years, the City of Chandler has experienced a successful diversification process. Its agricultural base of cotton and dairy products is still important, but the city is now a center for high-tech industry. More than 75 percent of Chandler's manufacturing employees are in high-tech fields compared to the national average of 15 percent. The City of Chandler MPA is located north of Hunt Highway, west of Lindsay Road, east of Price Road and 56th Street, and south of Pecos Road.

According to the ADWR Annual Water Withdrawal and Use Report, in the City of Chandler area in 1998, a total of 41,406 af of water were produced. Of that total, 704 af were from pumped groundwater, and the remaining 40,702 af were received from other rights including 36,828 af from surface water and 3,874 af from CAP. From the 41,406 af of water produced, 598 af of water were delivered to other users, leaving a balance of 40,808 af that were delivered for use.

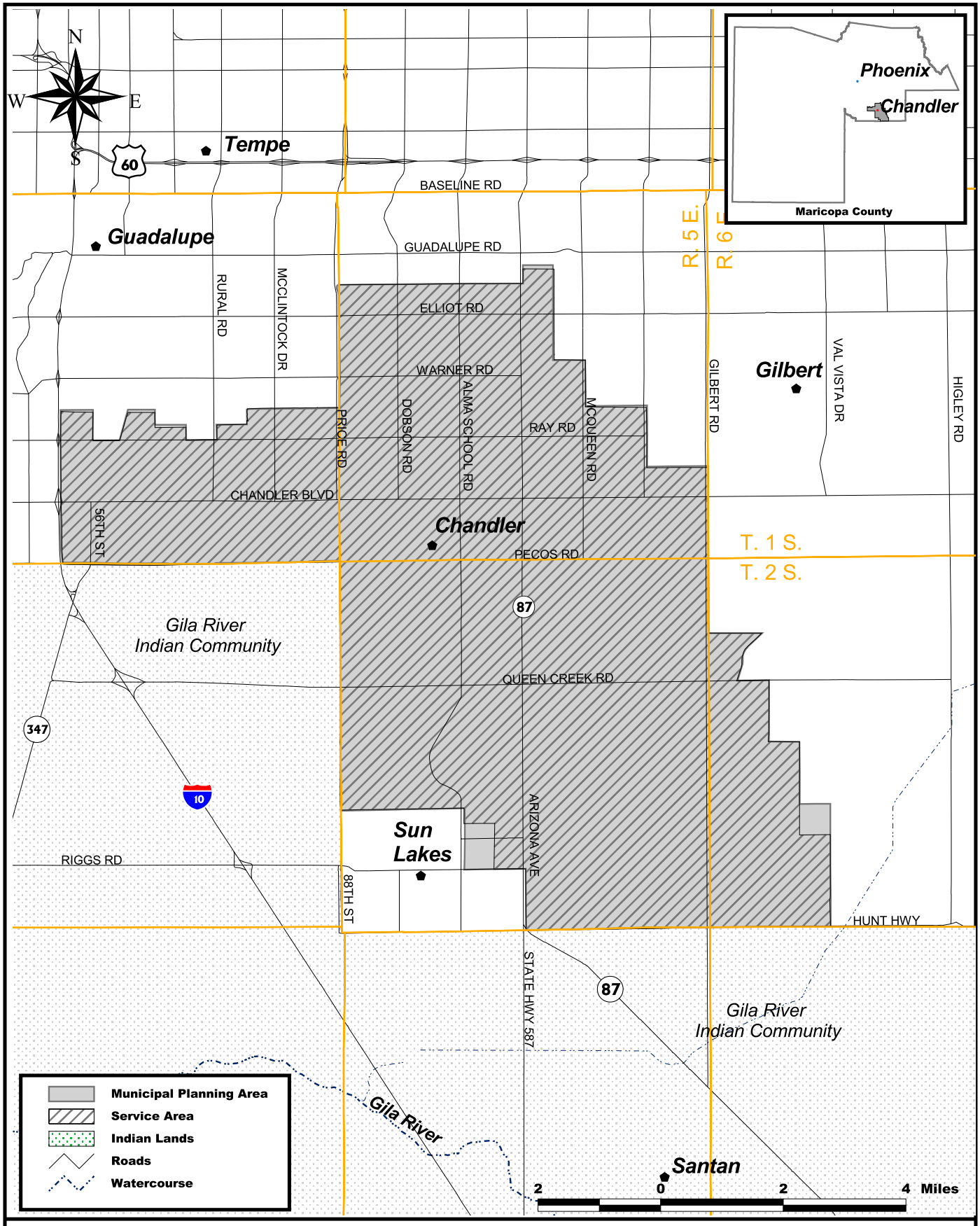
A. Plans to Take and Use CAP Water

The City of Chandler currently has a subcontract for 3,668 afa. Under the Settlement Alternative, the City of Chandler would receive an additional 4,986 af of CAP water. That CAP water would be delivered for a 50-year contract period (i.e., from 2001-2051). The CAP water would be used to supplement both current and projected water supply demands over the next 50 years and would help reduce the continuing dependence on pumping groundwater from an overdrafted groundwater system. Table L-M&I-21 outlines the proposed allocations by alternative.

Table L-M&I-21
CAP Allocation Draft EIS
City of Chandler – Proposed CAP Allocation

Alternative	Allocation (in afa)	Priority
Settlement Alternative	4,986	M&I
No Action	0	-
Non-Settlement Alternative 1	4,986	M&I
Non-Settlement Alternative 2	0	-
Non-Settlement Alternative 3A	0	-
Non-Settlement Alternative 3B	5,454	NIA
Existing CAP Allocation	3,668	

Figure L-M&I-11 shows both the service area and MPA for the City of Chandler. The service area covers approximately 44,596 acres and the MPA is estimated at 45,021 acres.



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CAP Allocation Draft EIS
General Location Map
City of Chandler

Figure #L-M&I-11

The Chandler Water Treatment Plant (CWTP) treats CAP water and has a current capacity of 45 million gallons per day (mgd) with a build-out capacity of 90 mgd. The CWTP is located on Pecos Road just east of McQueen Road in the City of Chandler. Chandler also has a contract with the City of Mesa to use 3.27 mgd or 3,669 afa of treatment capacity at Mesa's Brown Road Water Treatment Plant. No new delivery facilities would be required for the City of Chandler to take and use the additional CAP allocation (Barfoot 2000).

The City of Chandler is entitled to 20 percent of Granite Reef's Underground Storage Project's (GRUSP's) capacity. Additionally, they have water storage permits for 13,158 afa and 20,000 afa with the Roosevelt Water Conservation District (RWCD) and Salt River Project (SRP) groundwater savings facilities, respectively.

B. Population Projection

The 1985 population for the City of Chandler was 5,020. The estimated 2001 population level for the City of Chandler MPA is 169,395, and the estimated 2051 population level is 322,164.

C. Water Demand and Supply Quantities

As previously shown in Appendix C–M&I Sector Water Uses; it is estimated that water demand in the City of Chandler would increase from 43,915 af in year 2001 to 75,483 af in year 2051. The projected water uses both by water source and alternatives are provided below in Table L-M&I-22. Based on these anticipated water demands, the CAP water which would be allocated under the Settlement Alternative would provide 11 percent and seven percent of the current estimated water supply required for the City of Chandler for the years 2001 and 2051, respectively.

Table L-M&I-22
CAP Allocation Draft EIS
City of Chandler – Projected Water Use

Alternative	Annual CAP Deliveries		Groundwater		Effluent		Other Surface Water		Total Demand	
	2001	2051	2001	2051	2001	2051	2001	2051	2001	2051
Settlement Alternative	998	20,484	6,136	6,136	0	0	36,781	48,863	43,915	75,483
No Action	998	9,641	6,136	6,136	0	10,834	36,781	48,863	43,915	75,483
Non-Settlement Alternative 1	998	14,627	6,136	6,136	0	5,857	36,781	48,863	43,915	75,483
Non-Settlement Alternative 2	998	9,641	6,136	6,136	0	10,834	36,781	48,863	43,915	75,483
Non-Settlement Alternative 3A	998	9,641	6,136	6,136	0	10,834	36,781	48,863	43,915	75,483
Non-Settlement Alternative 3B	998	14,627	6,136	6,136	0	5,857	36,781	48,863	43,915	75,483
Note: A more detailed breakdown of supplies may be found in Appendix C.										

It is estimated that the demand for water at the end of the CAP contract period would be approximately 75,483 af. For all alternatives, there is estimated to be no unmet demand with or without the additional CAP allocation.

D. Environmental Effects

The following sections include a general description of existing conditions relating to land use, water resources and socioeconomics for each entity. The following summaries also include a description of the existing conditions and brief description of the impacts to biological and cultural resources that would result from the construction of CAP delivery facilities and conversion of desert and agricultural lands to urban uses.

1. Land Use

According to data from MAG, the land use designations in the City of Chandler MPA in 1995 consisted of approximately 20,506 acres of agriculture, 19,212 acres of developed land, 893 acres of rural land, 3,757 acres of vacant land, and 653 acres of water, including lakes, rivers and canals. As described in the introduction to this appendix, the 1995 MAG categories were redefined into three new categories (i.e., agriculture, desert and urban). These 1995 data were also updated and adjusted based on reviews of the 1998 aerial photography and the field surveys that were completed to assess biological resources for this EIS. Table L-M&I-23 provides the projected acres of land within the City of Chandler MPA that are agriculture, desert or urban and the number of acres expected to change from the existing category for the years 2001 and 2051.

TableL-M&I-23
CAP Allocation Draft EIS
City of Chandler – Projected Land Use Changes Within the MPA (in acres)

Alternative	Year	Agriculture	Agriculture Urbanized	Desert	Desert Urbanized	Urban	Changes to Urban Acreage
	2001	6,400	-	327	-	38,294	-
Settlement Alternative	2051	266	6,134	327	0	44,428	6,134
	2001	6,400	-	327	-	38,294	-
No Action	2051	266	6,134	327	0	44,428	6,134
	2001	6,400	-	327	-	38,294	-
Non-Settlement Alternative 1	2051	266	6,134	327	0	44,428	6,134
	2001	6,400	-	327	-	38,294	-
Non-Settlement Alternative 2	2051	266	6,134	327	0	44,428	6,134
	2001	6,400	-	327	-	38,294	-
Non-Settlement Alternative 3A	2051	266	6,134	327	0	44,428	6,134
	2001	6,400	-	327	-	38,294	-
Non-Settlement Alternative 3B	2051	266	6,134	327	0	44,428	6,134

2. Archaeological Resources

Most of the projects that have taken place within the City of Chandler MPA have been linear projects and related to construction of local roads and utilities (e.g., Woodall 1994). The majority of the western portion of the MPA was occupied prehistorically by the site complex known as Los Muertos, a series of Hohokam villages (e.g., Los Guanacos, Las Estufas) associated with an extensive irrigation system (Haury 1945; Howard and Huckleberry 1991; Midvale 1966; Turney 1929). Known and expected prehistoric resources in this area include artifact scatters, architectural features, canals, and burials. Protohistoric Pima and early historic Yaqui remains also are possible. Historic resources in this area include sites associated with agriculture, transportation, and the early Mexican settlement of Guadalupe (e.g., Corona Village). In the City of Chandler vicinity, known historic properties include the San Marcos Hotel, Chandler Park, and the Plaza Historic District. Water-control features significant to the development of modern irrigated agriculture (e.g., the Eastern, Consolidated, and Western Canals and laterals) also are present. Several historic roads (e.g., the wagon road from Sacaton to Tempe, ca. 1892) cross through the central portion of the MPA; however, because of the area's urban development, surface evidence of these features is unlikely. The City of Chandler does not have a historic preservation program.

Cultural resource sensitivity areas within the City of Chandler MPA are shown in Figure L-M&I-12. Based on the limited data used to generate the cultural sensitivity designations, the potential for cultural resource impacts in the City of Chandler MPA is low to moderate. Mitigation of cultural resource impacts due to urban expansion would be determined by local jurisdictions, and development of applicable permit requirements (such as the CWA Section 404 permit). Impacts on cultural resources due to future land use changes would be identical for each of the five alternatives. Mitigation for such impacts would be dependent on the requirements of the local jurisdiction. There would be no cultural resource impacts from construction of CAP water delivery facilities, since no new facilities would be required.

3. Biological Resources

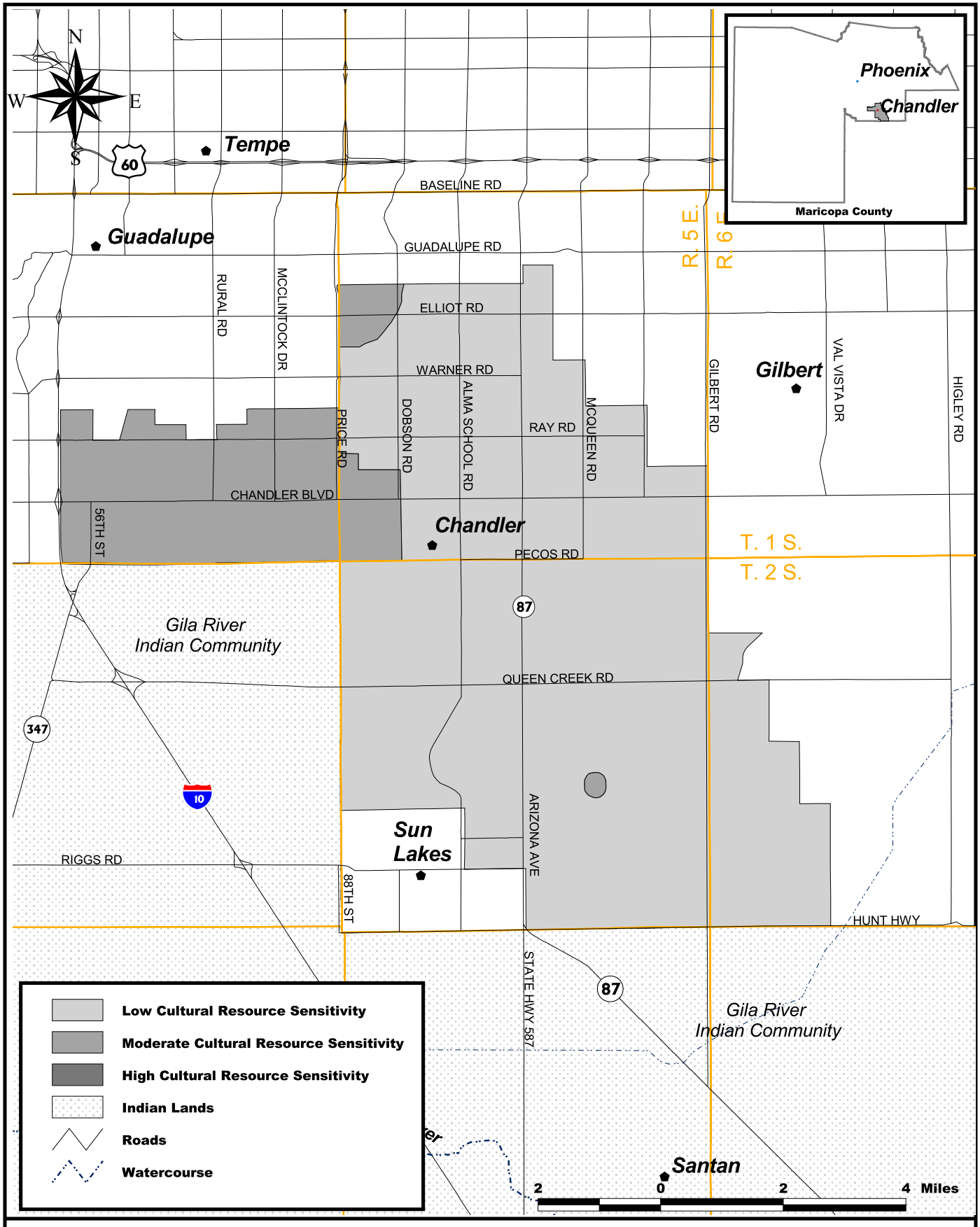
Existing Habitats

Little, if any, natural habitat remains within the City of Chandler MPA. Nearly all of the area has been developed for agriculture or urban use. Fallow fields in various stages of succession support small scrublands of velvet mesquite, desert-broom, four-wing saltbush, Frémont wolfberry, gray-thorn and creosote bush.

Impacts to Biological Resources

Under the No Action Alternative, urban growth within the City of Chandler MPA over the 50-year study period would result in no additional loss of natural habitat. However, an estimated 6,134 acres of farmland would be urbanized. This would result in the creation of fallow fields for some undetermined length of time. Fallow agricultural fields may be used by burrowing owls, a species protected under the Migratory Bird Treaty Act (MBTA). Individual developers who convert fallow lands for urban uses would be responsible for ensuring burrowing owls are removed prior to development. Failure to do so would be considered a violation of the MBTA. Under the action alternative, there is no difference in impacts from the No Action baseline. No new CAP water delivery facilities are required, so no additional construction-related impacts to biological resources would occur.

The habitat zones located in the City of Chandler service area are shown on Figure L-M&I-13. Table L-M&I-24 provides the habitat acreages in the City of Chandler MPA for the habitat zones described above.



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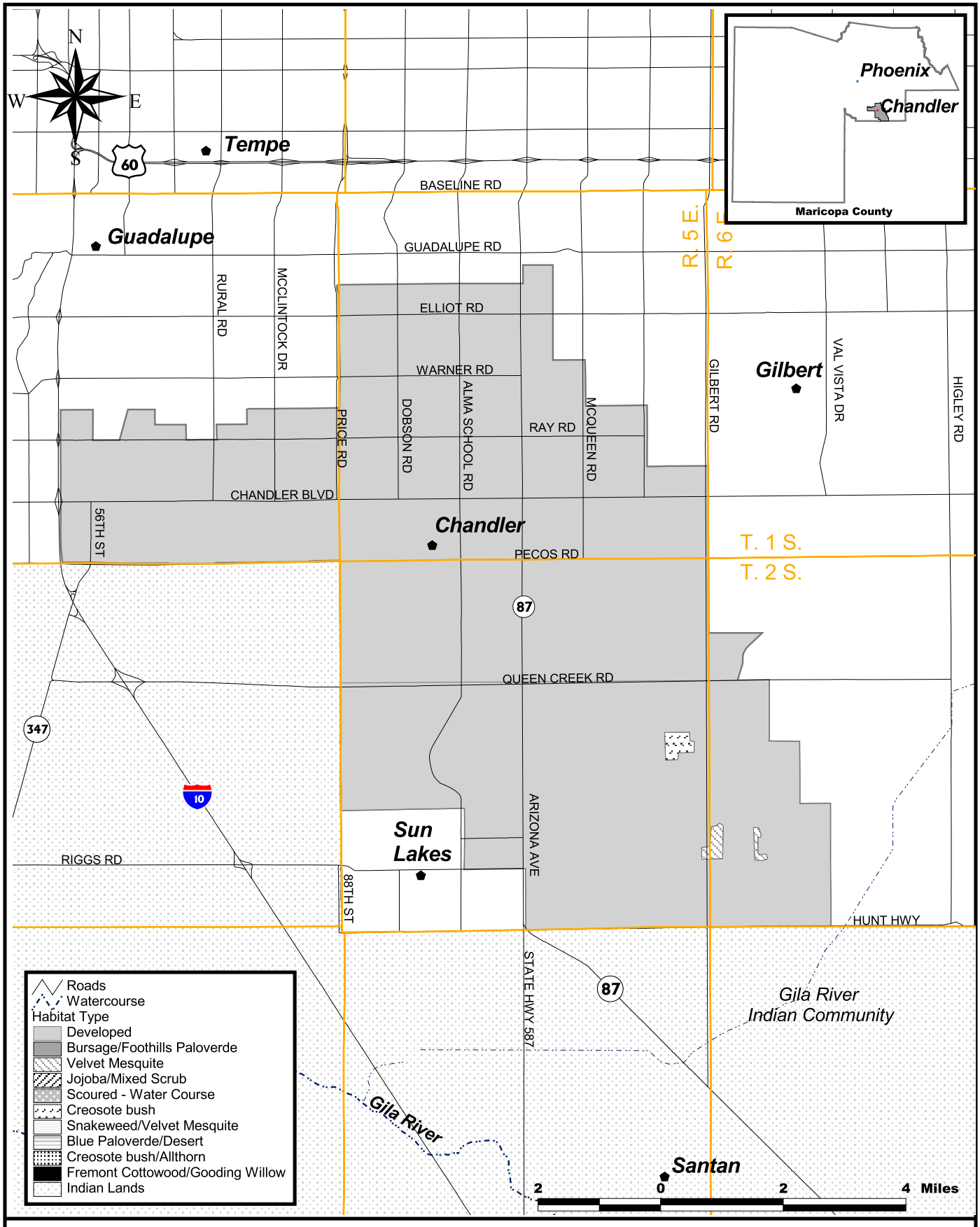
CAP Allocation Draft EIS
Cultural Resources
City of Chandler

Figure #L-M&I-12



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CAP Allocation Draft EIS
Habitat Zones
City of Chandler

Figure No. L-M&I-13

TableL-M&I-24 CAP Allocation Draft EIS City of Chandler– Habitat Acreages	
Vegetation Name	**Acres**
Developed	44,694
Velvet Mesquite	215
Creosote Bush	112
Total	**45,021**

Potential T&E Species and Acres of Potential T&E Species Habitat
There is no potential suitable habitat for T&E species within the City of Chandler MPA.

4. Water Resources

Demands in the City of Chandler have historically been met with water provided by SRP and groundwater pumped from the underlying sedimentary rocks. Groundwater levels have declined in response to this pumping, and there has been subsidence associated with these lower groundwater levels. The concentration of TDS in the underlying groundwater is generally from about 1,000 to 3,000 ppm..

Estimated groundwater level impacts are summarized in Table L-M&I-25, which shows the estimated groundwater level change for the period from 2001-2051 as well as the groundwater level impacts or the difference between the change in groundwater levels for each alternative relative to the change for the No Action Alternative. Most of the City of Chandler falls within two groundwater sub-areas used for the analysis. Table L-M&I-25 shows groundwater conditions estimated for areas which include the northern and southern part of the City of Chandler (values for the northern part are presented first). Groundwater levels decline for all alternatives in both of these areas, with the larger declines for each alternative occurring in the southern part of Chandler.

Under the No Action Alternative, groundwater levels would decline by about 123 to 154 feet. These declines reflect, in part, continued reliance on groundwater to meet demands, both in the City of Chandler and in adjacent areas. Substantial changes in groundwater quality would not be anticipated. However, there would be the potential for subsidence due to the lower groundwater levels.

Groundwater levels would also decline in the City of Chandler under the Settlement Alternative and all Non-Settlement Alternatives. The groundwater level impacts (changes from the No Action Alternative) appear to be most strongly influenced by changes in groundwater flows from adjacent areas, impacted by groundwater level changes beneath GRIC to the south and in the vicinity of GRUSP to the north. Also, for the Settlement Alternative, groundwater levels in Chandler also reflect additional CAP water obtained

from GRIC in exchange for effluent.

Substantial changes in groundwater quality would not be anticipated for any of the alternatives. There would be the potential for subsidence under all alternatives.

Table L-M&I-25
CAP Allocation Draft EIS
City of Chandler–Groundwater Data Table

Alternative		
	Estimated Groundwater Level Change from 2001-2051 (in Feet)	**Groundwater Level Impact** (in Feet)**
No Action	-123/-154	--
Settlement Alternative	-109/-116	14/38
Non-Settlement Alternative 1	-116/-136	7/18
Non-Settlement Alternative 2	-134/-168	-11/-14
Non-Settlement Alternative 3A	-147/-178	-24/-24
Non-Settlement Alternative 3B	-139/-158	-16/-4

*****Values correspond to the Chandler North and Chandler South sub-areas, respectively, as discussed in Appendix I.
** Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels.

5. Socioeconomic

The same population growth is supported under all alternatives, including the No Action Alternative. However, the cost of providing water may vary by alternative. Costs were estimated, on a per af basis, of providing the proposed allocations and, in their absence, alternative water supplies. The alternative water supplies include joining the CAGRD and, if needed, treating and reusing effluent. The difference in cost for this small increment of the City of Chandler's total water supply is considered insignificant. It should be noted that the increment of demand met by the proposed CAP allocation is approximately 6.6 percent of the total year 2051 demand for the City of Chandler.

Table L-M&I-26
CAP Allocation Draft EIS
City of Chandler–Cost of Potable Water for Additional Allocation Increment

Alternative	Cost of Water ($ per af)	Water Source
Settlement Alternative	154[a,b]	CAP Allocation
No Action	237[a]	Reclaimed Water
Non-Settlement Alternative 1	154[a]	CAP Allocation
Non-Settlement Alternative 2	237[a]	Reclaimed Water
Non-Settlement Alternative 3A	237[a]	Reclaimed Water
Non-Settlement Alternative 3B	154[a]	CAP Allocation

Notes:
a. Estimated average unit cost expressed in year 2000 dollars.
b. Does not include monetary contribution to the GRIC Settlement.